CLAIMS

1. A data-modulating apparatus for modulating data having a basic data length of m bits, to a variable-length code (d,k ; m,n ; r) having a basic code length of n bits, said apparatus comprising:

sync signal adding means for adding a sync signal to a train of codes after adding a minimum run, said sync signal having a pattern that breaks a maximum run.

2. The data-modulating apparatus according to claim 1, characterized in that the pattern that breaks the maximum run is repeated twice continuously.

3. The data-modulating apparatus according to claim 1, characterized in that the sync signal has two or more patterns that can be distinguished from one another.

4. The data-modulating apparatus according to claim 1, characterized in that the sync signal having two or more patterns is selected such that a detection distance of 2 or more is provided between the two or more patterns.

5. The data-modulating apparatus according to claim 1, characterized in that a DC-free pattern is selected for the sync signal having two or more patterns.

6. The data-modulating apparatus according to claim 1, characterized in that two sync signals having two or more patterns each are given as a set and are interchangeably selected to achieve DSV control.

7. A data-modulating method of modulating data having a basic data length of m bits, to a variable-length code (d,k ; m,n ; r) having a basic code length of n bits, said method including the step of:

adding a sync signal to a train of codes after adding a minimum run, said sync signal having a pattern that breaks a maximum run.

8. A data-providing medium for providing a data-modulating apparatus with a computer-readable program, said apparatus designed to modulate data having a basic data length of m bits, to a variable-length code (d,k ; m,n ; r) having a basic code length of n bits, said program designed to cause said apparatus to perform a process including the step of adding a sync signal to a train of codes after adding a minimum run, said sync signal having a pattern that breaks a maximum run.

9. A data-demodulating apparatus for demodulating a variable-length code (d,k ; m,n ; r) having a basic code length of n bits to data having a basic data length of m bits, to a, said apparatus comprising:

sync signal detecting means for detecting, from a train of codes, a sync signal having a pattern that breaks a maximum run, after detecting a minimum run.

10. A data-demodulating method of demodulating a variable-length code (d,k;m,n;r) having a basic code length of n bits to data having a basic data length of m bits, said method including the step of:

detecting, from a train of codes, a sync signal having a pattern that breaks a maximum run, after detecting a minimum run.

11. A data-providing medium for providing a data-demodulating apparatus with a computer-readable program, said apparatus designed to demodulate a variable-length code (d,k ; m,n ; r) having a basic code length of n bits to data having a basic

data length of m bits, said program designed to cause said apparatus to perform a process including the step of detecting, from a train of codes, a sync signal having a pattern that breaks a maximum run, after detecting a minimum run.

Add #7